

REMARKS

Claims 1, 2, 10, 11, 15-23 and 25-27 are in this application and are presented for consideration. By this amendment, Applicant has amended claims 18 and 25 for minor details. It is Applicant's position that the changes to claims 18 and 25 do not raise any new issues and do not materially alter the scope of the claims.

Claims 1-4, 9-11 and 14-23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Brewer et al. (U.S. 6,322,600) further in view of Wenski et al. (U.S. 6,530, 826) and Matsuo et al. (JP 2003-200,347).

The present invention relates to a method for polishing a wafer. The method includes supplying a polishing agent containing an alkaline solution to a polishing cloth. The alkaline solution contains an organic base or a salt thereof and silica having essentially spherical particles. The organic base or the salt is tetramethyl ammonium hydroxide, which is used in a range from greater than 10 wt % to less than or equal to 20 wt %. The range of tetramethyl ammonium hydroxide being greater than 10 wt % and less than or equal to 20 wt % is significant in the present invention because it significantly reduces linear defects that are generated on a surface of a polished wafer. The use of tetramethyl ammonium hydroxide in the claimed range advantageously improves dispersibility, prevents aggregation of the silica and suppresses generation of linear defects. The prior art as a whole fail to disclose such features or such linear defect suppression advantages.

The Office Action relies on Wenski et al. to teach tetramethyl ammonium hydroxide that is used in a range from greater than 10 wt % to less than or equal to 20 wt %.

Applicant respectfully disagrees with this interpretation of Wenski et al. Wenski et al. fails to teach and fails to suggest the combination of tetramethyl ammonium hydroxide that is used in a range from greater than 10 wt % to less than or equal to 20 wt %. The Office Action takes the position that Column 4, lines 30-34 of Wenski et al. discloses tetramethyl ammonium hydroxide that is used in the claimed range. However, Wenski et al. must be given a fair reading for what it teaches. Column 4, lines 30-34 of Wenski et al. only discloses a cloth that contains a polishing abrasive composed of 1 to 10% weight of SiO_2 in ultrapure water, which is adjusted to a pH in the range from 9 to 12 by adding alkali, such as Na_2CO_3 , K_2CO_3 , NaOH , KOH , NH_4OH and tetramethylammonium hydroxide. However, Column 4, lines 30-34 of Wenski et al. does not disclose a polishing agent having tetramethyl ammonium hydroxide with a concentration in the range of greater than 10 wt % to equal to or less than 20 wt % as claimed. Wenski et al. only discloses adding alkali, such as Na_2CO_3 , K_2CO_3 , NaOH , KOH , NH_4OH and tetramethyl ammonium hydroxide in proportions from 0.01 to 10% by weight. Compared with Wenski et al., the present invention comprises supplying a polishing agent containing an alkaline solution to a polishing cloth wherein the alkaline solution contains an organic base or a salt thereof that is tetramethyl ammonium hydroxide. According to the present invention, the tetramethyl ammonium hydroxide is used in a range from greater than 10 wt % to less than or equal to 20 wt %. This advantageously suppresses generation of linear defects since the use of tetramethyl ammonium hydroxide in the claimed range advantageously improves dispersibility and prevents aggregation of the silica. Wenski et al. fails to disclose such linear defect prevention advantages since Wenski et al. only discloses adding tetramethyl

ammonium hydroxide in proportions from 0.01 to 10% by weight, but does not direct a person of ordinary skill in the art toward using tetramethyl ammonium hydroxide in a range from greater than 10 wt % to less than or equal to 20 wt % as claimed. As noted in the Office Action, Brewer et al. and Matsuo et al. also fail to disclose such features. As such, the prior art as a whole fails to establish a prima facie case of obviousness since the cited prior art references as a whole do not teach or suggest each feature of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection and favorably consider claims 1, 2 and 18 as now presented and all claims that respectively depend thereon.

The references as a whole fail to provide any teaching or suggestion for collecting excess polishing agent with a collecting tank located adjacent to a rotatable table as featured in claim 25. Matsuo et al. only discloses recycling spent slurry. However, Matsuo et al. does not teach or suggest a collecting tank that collects excess slurry wherein the collecting tank is located adjacent to a rotatable table as claimed. As such, the prior art as a whole takes a different approach and fails to establish a prima facie case of obviousness since the prior art as a whole does not teach or suggest important features of the present invention. Accordingly, Applicant respectfully requests that the Examiner reconsider the rejection and favorably consider claim 25 as now presented.

Claims 18-23 and 25-27 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Applicant respectfully traverses this rejection. It is Applicant's position that the term "slurry holding tank" does not refer to two different tanks as mentioned in the Office Action. Claim 18 provides for two different tanks. The term "slurry holding tank" refers to the slurry preparation tank 52. The holding means refers to the slurry supply tank 50, which is located adjacent to the slurry preparation tank 52. This is clearly shown in Figure 1. Claim 25 provides a third tank, namely the collecting tank 64 that collects excess polishing agent. The collecting tank 64 is located adjacent to the rotatable table. As such, it is Applicant's position that the claims as presented are clear and fully comply with the requirements of the statute. Applicant respectfully requests that the Examiner reconsider the rejection and favorably consider the claims as now presented.

Favorable consideration on the merits is requested.

Respectfully submitted
For Applicant,



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